

**METHODS AND APPARATUS FOR OPTIMIZING A PROGRAM
UNDERGOING DYNAMIC BINARY TRANSLATION USING PROFILE
INFORMATION**

ABSTRACT

Methods and apparatus for optimizing a program undergoing dynamic binary translation using profile information are disclosed. A disclosed system optimizes foreign program instructions through an enhanced dynamic binary translation process. The foreign program instructions are translated into native program instructions. Loops within the native program instructions are instrumented with profiling instructions and optimized. The profiling information is collected during execution of the loop. After profiling information is collected, the loop may be further optimized by inserting prefetching instructions into the optimized loop. The prefetched loop is then linked back into the native program instructions and is executable.